

**Book Number 1**

# **The YAESU Book**

**CPU Reset Information**

**Packet Interface Information**

**Mars and CAP Modifications**

# The YAESU Book

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# YAESU U.S.A.

17210 Edwards Road, Cerritos, CA 90701 • Phone: (213) 404-2700

## INTERFACE FOR YAESU HT TO PACKET TNC: FT-23/33/73/109/209/709/727/411/811/911/470

Please refer to the diagram below, and the interface instructions for your Terminal Node Controller (TNC).

In the diagram, the connection points are:

(A) "TX Audio" Connect through 0.1  $\mu$ F disc ceramic capacitor.

(B) Ground

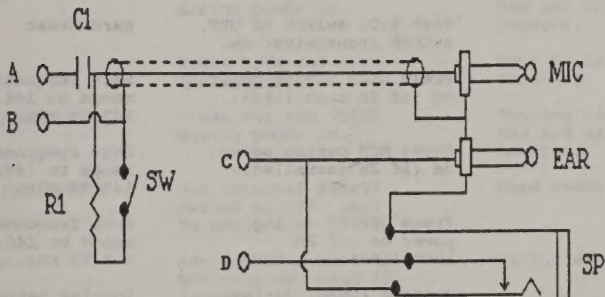
(C) "RX Audio"

Either may be used

(D) "RX Audio"

SW "PTT"

Connect the PTT line from TNC here, through 2.2K Ohm resistor to the MIC line. Be sure to connect ground side properly.



C = 0.1 $\mu$ F/50 Volts

R = 2.2K $\Omega$  1/4 Watt

S = PTT Switch or equivalent



## YAESU CPU RESET PROCEDURES

### A. HF Transceivers

| <u>Model</u>  | <u>Procedure</u>  | <u>Comments</u>                                  |
|---------------|---|--|
| FT-1000/1000D | Turn off Backup Switch inside top panel window.                   | Hard Reset                                       |
|               | Press SUB and ENTER, hold in during power on.                     | Memory Reset                                     |
|               | Press 1.5 and 3.5, hold in during power on.                       | Soft Reset for checking Display and ROM Version. |
| FT-990        | Turn off Backup Switch inside top panel window.                   | Hard Reset                                       |
|               | Press GEN and ENT, hold in during power on.                       | Memory Reset                                     |
|               | Press 1.5 and 7, hold in during power on.                         | Soft Reset for checking Display and ROM Version. |
| FT-890        | Press HAM/GEN and CLAR, hold in during power on.                  | Hard Reset                                       |
|               | Press A/B and A=B, hold in during power on.                       | Soft Reset for checking Display and ROM Version. |
| FT-767GX      | Push B.U. switch to OFF, switch transceiver on.                   | Hard Reset                                       |
|               | Press CLAR during power on (if 2M installed).                     | Sets frequency range to 144.00-145.99 MHz.       |
|               | Press MCK during power on (if 2M installed).                      | Sets frequency range to 144.00-147.99 MHz.       |
|               | Press OFFSET during power on (if 2M installed).                   | Sets frequency range to 140.00-148.99 MHz.       |
|               | Press 0 (Zero) during power on (if 70 cm inst.).                  | Toggles between 430 MHz and 440 MHz coverage.    |
| FT-757GX      | Press MARKER and LINEAR in, switch power on.                      | Hard Reset                                       |
| FT-747-GX     | Slide Backup switch (on bottom of panel) toward main tuning dial. | Hard Reset                                       |
| FRG-8800      | Remove Backup Batteries   | Hard Reset                                       |

## B. VHF/UHF Transceivers

| <u>Model</u>     | <u>Procedure</u>  | <u>Comments</u>                           |
|------------------|---|---|
| FT-26/27         | Push UP and DN keys during power on.  | Toggles between Ham and Expanded Receive. |
|                  | Push T and REV keys during power on.  | Sets to factory defaults.                 |
| FT-411E/811/911  | Push UP and DN keys during power on.  | Toggles between Ham and Expanded Receive. |
|                  | Push VFO and MR keys during power on.   | Sets to factory defaults.                 |
| FT-470           | Same as 411E/811/911.   |   |
| FT-415/815       | Same as 411E/811/911.   |   |
| FT-2400H         | Press D/MR, REV/HOLD during power on.   | Toggles between Ham and Expanded Receive. |
|                  | Press D/MR, F/W during power on.  | Reset memories only.                      |
|                  | Press D/MR, REV/SKIP during power on, turn XCVR off, then hold in D/MR during power on. | Sets to factory defaults.                 |
| FT-5200          | Press MHZ and DVS/HOLD during power on.   | Toggles between Ham and Expanded Receive. |
|                  | Press D/MR and REV during power on.   | Sets to factory defaults.                 |
| FT-212/712/912   | Press MHZ and VOICE during power on.  | Toggles between Ham and expanded Receive. |
| FT-290/690/790II | Set internal BACKUP switch to OFF, wait 30 seconds.                                     | Hard reset                                |
| FT-736R          | Set BACKUP switch to OFF, unplug, wait 30 seconds.                                      | Hard reset                                |



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17210 Edwards Road, Cerritos, CA 90701 • Phone: (213) 404-2700

## PACKET CABLE INTERFACE FOR YAESU FT-2400H

This bulletin describes the interface procedure for the FT-2400H 2 Meter Mobile Transceiver to currently-available packet Terminal Node Controllers (TNCs).

### Part Required:

Yaesu Packet Interface Cable, Part # "2400 MIC CABLE"

(Option): 2-conductor miniature speaker plug with 12" coaxial cable attached (for silent monitoring)

### Cable Connections:

| <u>Mic Connector Pin #</u> | <u>Wire Color</u> | <u>Function</u> |
|----------------------------|-------------------|-----------------|
| 2                          | Black             | RX Audio        |
| 3                          | Red               | PTT             |
| 4                          | Yellow            | TX Audio        |
| 5                          | Shield            | Ground          |
| 6                          | White             | No Connection   |

Note that squelch status is not available from the front panel microphone jack, so your TNC must not require a "Squelch" or "Busy" line for proper operation.

The above configuration allows you to hear the incoming packets through the speaker, which remains connected. If you do not wish to be bothered by the packet tones, do not connect the "RX Audio" line to your TNC to the Black wire as shown above. Instead, take the RX Audio line from the rear panel "SP" (Speaker) jack, using the miniature phone plug and small coaxial cable mentioned above. Connect the tip/center conductor to the black wire, and connect the shields together.

Be certain to tape all soldered connections to avoid shorts, or use heat-shrink tubing.

**IMPORTANT NOTE:** EACH TNC MANUFACTURER USES A DIFFERENT COLOR CODE FOR ITS INTERFACE CONNECTIONS. THE COLOR CODE AND FUNCTION DESCRIPTIONS APPLY TO THE YAESU INTERFACE CABLE ONLY. MATCH THE WIRES ABOVE TO THE CABLE CONNECTED TO YOUR TNC BY FUNCTION, NOT BY COLOR!

Fax: (213) 404-1210 • TWX: 372-8212(YAESU USA)

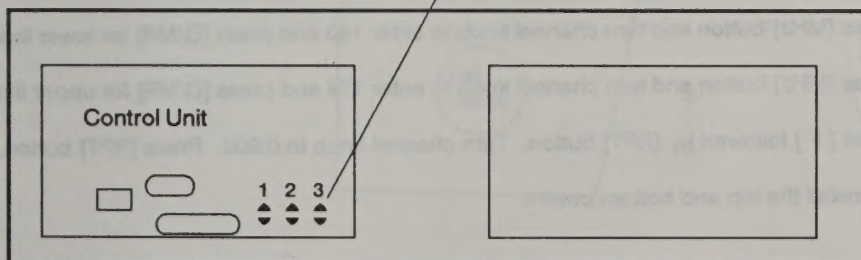
## YAESU FT-1000 & FT-1000D

Expanded Transmit (.1-30 MHz)

**NOT LEGAL IN U.S.A. - FOR EXPORT ONLY**

- Disconnect AC Power cable from radio.
- Remove top and bottom covers.
- Locate the four (4) screws attaching the front panel and remove the top screws. Loosen the bottom screws only.
- Tilt the front panel forward.
- On the left side of radio, remove the plug from the power supply connected to the front panel (white and gray wires).
- Locate jumper pad 6 on the Control Board.
- **Unsolder jumper #3.**
- Reassemble the Radio.
- Reset the microprocessor.

**Remove Solder Bridge from Jumper #3**



**FT-1000 Front Panel**





## **YAESU FT-212 RH**

**Expanded Transmit 140-174 MHz**

**NOT LEGAL IN U.S.A. - FOR EXPORT ONLY**

- Disconnect DC Power cable from radio.
- Remove top and bottom covers.
- Remove the (3) knobs from front display (volume, squelch & channel knobs) by pulling out.
- Remove the three screws holding the control unit to main radio body.
- Carefully remove the Control unit from the front panel.
- Locate and remove solder from pad 1 on the control unit.
- Solder jumper pads 3, 4, 11 & 14.
- Re-install the control unit on front panel.
- With power still off. Reset the microprocessor.  
(use a jumper and short D09 on the control unit to a ground on the radio.)
- Install the Channel, volume & squelch knobs.
- Reconnect power cord and turn radio on.
- Press [MHz] button and turn channel knob to enter 140 and press [D/MR] for lower limit.
- Press [MHz] button and turn channel knob to enter 174 and press [D/MR] for upper limit.
- Press [ F ] followed by [RPT] button. Turn channel knob to 0.600. Press [RPT] button.
- Re-install the top and bottom covers.

NOTE: Automatic Repeater Offset will not function after mod. Also Tx power will drop off above 160 MHz.



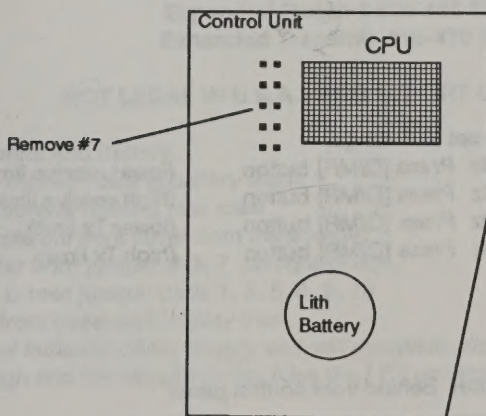
# YAESU FT-23R

Expanded Transmit & Receive 140-164 MHz

NOT LEGAL IN U.S.A. - FOR EXPORT ONLY

- Remove Antenna and Battery.
- Remove four screws holding top panel and four screws holding battery track.
- Remove two screws holding rear case.
- Slowly separate the front cover from transceiver.
- Remove solder from jumper # 7 on control unit.
- Replace the front cover, top panel and battery track.
- The modification is now complete.

## FT-23R



## YAESU FT-2400H

Expanded Receive 118-174 MHz

Expanded Transmit 140-174 MHz

**NOT LEGAL IN U.S.A. - FOR EXPORT ONLY**

- Disconnect DC Power cable from radio.

- Remove Front Panel (2 Allen screws)

- Locate and unsolder jumper pad 2

- Locate and solder jumper pads 1 & 3

- Install front panel

- Turn power on. Modification complete.  
(118-174 Rx, 140-174 MHz Tx)

### **\*\*\* FOR FREE BAND OPERATION (Wider Tx Coverage) \*\*\***

- Locate and solder jumper pads 1, 2, 3.

- Install front panel

- Turn power on.

- Use the MHz button to set VHF range:

Select 138.00 MHz Press [D/MR] button

(lower receive limit)

Select 174.00 MHz Press [D/MR] button

(high receive limit)

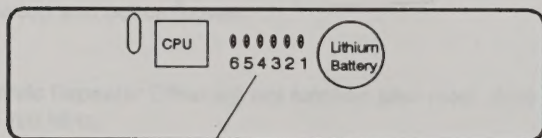
Select 138.00 MHz Press [D/MR] button

(lower Tx limit)

Select 174.00 MHz Press [D/MR] button

(high Tx limit)

**FT-2400H** Behind front control panel



Jumper Pads

## YAESU FT-26

Expanded Transmit & Receive 135-174 MHz

NOT LEGAL IN U.S.A. - FOR EXPORT ONLY

- Remove Antenna and Battery.
- Remove four screws holding battery track.
- Remove two screws holding rear case.
- Slowly separate the front cover from transceiver.
- Remove solder from jumper # 10 on control unit.
- Place solder across jumper pads 1, 3, 7, 8.
- Replace the front cover and battery track.

*Each channel indicator blinks orderly and will complete after Ch 4 D/MR key is depressed.*

- Now enter high and low receive limits. (Use the [ F ] up arrow key.)

|               |        |                       |
|---------------|--------|-----------------------|
| Ch. 1 135.000 | [D/MR] | key for Rx Low Limit  |
| Ch. 2 174.000 | [D/MR] | key for Rx High Limit |
| Ch. 3 135.000 | [D/MR] | key for Tx Low Limit  |
| Ch. 4 174.000 | [D/MR] | key for Tx High Limit |

- For the Soft reset of the CPU (clear memories only) press and hold [ T ] [REV] keys and turn radio on
- Master Reset press and hold [D/MR] [ T ] [REV] keys and turn radio on. Enter new band limits.

---

## YAESU FT-76

Expanded Receive 400-485 MHz

Expanded Transmit 415-470 MHz

NOT LEGAL IN U.S.A. - FOR EXPORT ONLY

- Remove Antenna and Battery.
- Remove four screws holding battery track.
- Remove two screws holding rear case.
- Slowly separate the front cover from transceiver.
- Remove solder from jumper # 4, 7 on control unit.
- Place solder across jumper pads 1, 3, 5, 8, 9, 10
- Replace the front cover and battery track.

*Each channel indicator blinks orderly and will complete after Ch 4 D/MR key is depressed.*

- Now enter high and low receive limits. (Use the [ F ] up arrow key.)

|               |        |                       |
|---------------|--------|-----------------------|
| Ch. 1 400.000 | [D/MR] | key for Rx Low Limit  |
| Ch. 2 485.000 | [D/MR] | key for Rx High Limit |
| Ch. 3 415.000 | [D/MR] | key for Tx Low Limit  |
| Ch. 4 470.000 | [D/MR] | key for Tx High Limit |

- For the Soft reset of the CPU (clear memories only) press and hold [ T ] [REV] keys and turn radio on
- Master Reset press and hold [D/MR] [ T ] [REV] keys and turn radio on. Enter new band limits. N.M. 5/91

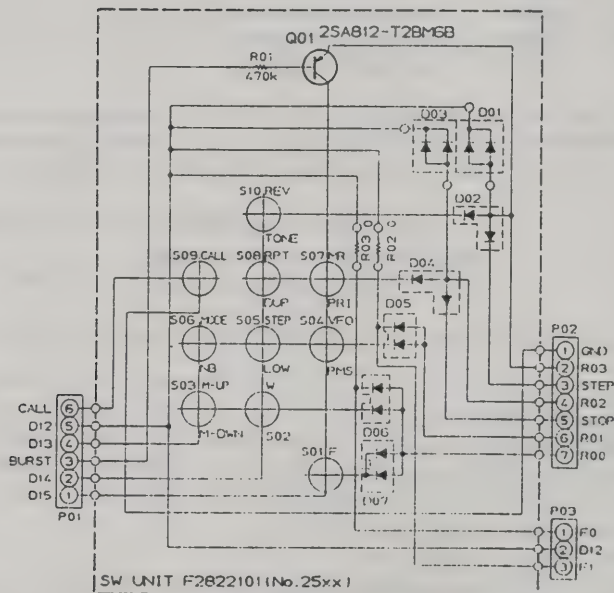


THE FT-290 MKII MARS/CAP OPERATION MODIFICATION 4/22/89

The following DIODE/RESISTOR mix on the SW UNIT will change the operating frequency spread of the FT-209 MKII.

| D01 | D03 | R02 | R03 |              |
|-----|-----|-----|-----|--------------|
| 0   | 0   | X   | 0   | — 144-148MHz |
| 0   | 0   | X   | X   | — 140-150MHz |
| 0   | 0   | 0   | X   | — 144-146MHz |
| 0   | X   | 0   | X   | — 144-154MHz |

X=Omit  
O=Installed



RESISTOR VALUES ARE IN  $\Omega$ /K/ $\Omega$ :  
DIODES ARE TYPE 1N5101:  
UNLESS OTHERWISE NOTED



## YAESU FT-411E

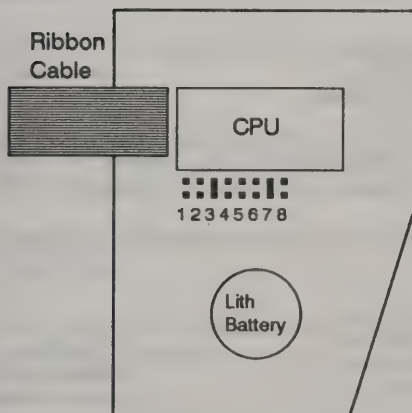
Expanded Transmit 140-174 MHz

Expanded Receive 120-174 MHz

**NOT LEGAL IN U.S.A. - FOR EXPORT ONLY**

- Remove Antenna and Battery.
- Remove body screws and open radio.
- Remove solder from jumper pad 2
- Place solder on jumper pad 3
- Reassemble Radio.
- Reset Radio. Press and hold [MR] [ 2 ] [VFO] while holding Keys, turn Radio on.
- Enter the following:  
1200 [VFO] 1740 [VFO] 1400 [VFO] 1740 [VFO]
- Press [F/M] then [ 7 ]. Change channel step to 5 kHz. Press [ 7 ].

### FT-411, FT-411E



Pads 3 & 7 Soldered.  
Pads 1, 2, 4, 5, 6, 8 no Solder.

## YAESU FT-415

Expanded Receive 120-174 MHz  
Expanded Transmit 135-174 MHz

**NOT LEGAL IN U.S.A. - FOR EXPORT ONLY**

- Remove Antenna and Battery.
- Remove four screws on bottom holding battery track.
- Remove the two (black) screws holding rear case.
- Slowly..... open the front cover from transceiver.
- Place solder across jumper pads 5, 7. (*Pads 3, 5, 7, 9 should be jumpered*) (*Stock, Pads 3, 9 only*)
- CAREFULLY..... Replace the front cover and battery track and attach screws.
- Turn off Radio. Press and hold [MR] [ 2 ] [VFO] Keys while turning on the Radio.

*Each channel indicator blinks orderly and will complete after Ch 4 VFO key is depressed.*  
- Now enter high and low frequency limits.

Ch. 1 120.000 [VFO] key for Rx Low Limit  
Ch. 2 174.000 [VFO] key for Rx High Limit  
Ch. 3 135.000 [VFO] key for Tx Low Limit  
Ch. 4 174.000 [VFO] key for Tx High Limit

**NOTE: Jumper Pads 1 & 10  
for Tone Burst  
(1750 Hz) operation.**

- Press [ F ] [ 7 ] and select 5 kHz for your channel steps on each VFO.

*NOTE: For Master Reset press and hold [MR] [ 2 ] [VFO] keys and turn radio on. Enter new band limits.*

---

## YAESU FT-815

Expanded Receive & Transmit 410-475 MHz

**NOT LEGAL IN U.S.A. - FOR EXPORT ONLY**

- Remove Antenna and Battery.
- Remove four screws on bottom holding battery track.
- Remove the two (black) screws holding rear case.
- Slowly..... open the front cover from transceiver.
- Remove solder from jumper # 8 on control unit.
- Place solder across jumper pads 5, 7. (*Pads 5, 7, 9 should be jumpered*) (*Stock, Pads 8, 9 only*)
- CAREFULLY..... Replace the front cover and battery track and attach screws.
- Turn off Radio. Press and hold [MR] [ 2 ] [VFO] Keys while turning on the Radio.

*Each channel indicator blinks orderly and will complete after Ch 4 VFO key is depressed.*  
- Now enter high and low frequency limits.

Ch. 1 410.000 [VFO] key for Rx Low Limit  
Ch. 2 475.000 [VFO] key for Rx High Limit  
Ch. 3 415.000 [VFO] key for Tx Low Limit  
Ch. 4 470.000 [VFO] key for Tx High Limit

**NOTE: You will have to  
adjust the VCO for Tx  
above 460.000 MHz.**

- Press [ F ] [ 0 ] [ 6 ] and select 5.000 MHz for your Repeater offset on each VFO.

*- NOTE: For Master Reset press and hold [MR] [ 2 ] [VFO] keys and turn radio on. Enter new band limits.*

N.M. rev 3/92



**YAESU FT-4700 RHT**  
**Expanded Transmit 140-174 MHz**  
**410-475 MHz**

**NOT LEGAL IN U.S.A. - FOR EXPORT ONLY**

- Disconnect DC Power cable from radio.
- Remove Front Panel.
- Locate and solder jumper pads 1, 2, 5, 9, 10 & 13.
- Install front panel
- Turn power on.
- Use the up button to set UHF range:
  - Select 410.00 MHz Press [D/MR] button
  - Select 475.00 MHz Press [D/MR] button
- The display will now show 47.75 which is the UHF IF frequency.  
Press [D/MR]
- Use the up button to set VHF range:
  - Select 138.00 MHz Press [D/MR] button
  - Select 174.00 MHz Press [D/MR] button
- The display will now show 17.3 which is the VHF IF frequency.  
Press [D/MR]
- Don't forget to reset the repeater shifts to 0.600 for VHF and 5.000 for UHF.  
[ F ] then [RPT] button.

## YAESU FT-470

### Expanded Receive 430-500 MHz

This Modification will make the popular Yaesu FT-470 dual-band HT receive above 450 MHz. Basically, this procedure stores the upper limit into the U memory. Do not open the Radio. This is a keypad modification that will expand the receiver coverage to include 450-500 MHz. Transmit and Receive will not be affected in the 430-450 MHz band. (VHF band is not effected)  
Special thanks to Darrel Sego (KM9S) for this Mod.

Modification info. Please follow steps in proper order.

1. On the main band program the frequency of **450.00 MHz Simplex**.
2. Press the **[F/M]** and then the **[RPT]** button for offset.
3. Enter code **0000** into the keypad.
4. Turn the radio Off..... Now turn the radio back on.
5. Press the **[RPT]** key twice for a + (plus) offset.
6. Press the **[REV]** button one time.
7. The Radio should now display 1450.00 MHz. (Note: The radio will not work at these frequencies. But it should receive up to about 500 MHz)
8. Now store the frequency of **500.00 MHz** in the U memory. Press the **[F/M]** key followed by the **down arrow** key to drop the frequency one MHz at a time.
9. Store this frequency into **memory U**. Press the **[F/M]** key and hold until you hear two beeps. Now rotate the top Channel/dial knob until the **Channel U** is displayed. Press the **[F/M]** key again (you should hear a beep). This indicates that this upper channel is stored in the **U memory** channel.
10. Now store **450.00 MHz** into **memory L** for your lower limit (same way as you did in step 9)
11. To use the higher frequencies you have to go to the **U memory** and **press the [MR] button**, this will put you in the MT (memory tune) mode. From there you can Scan down or use the Dial knob to select a lower frequency.
12. Any selected frequency can be stored in a memory channel. HAVE FUN !!!

**Note:** If you are listening between 450-470 MHz only. You may want to store 470.00 into the U memory for upper limit instead of 500.00 MHz. Some Radios will not let you go up in frequency (only down). If you try to go UP the rig will default back into the original ham band. Some Radios will let you go up or down.

### For Additional Coverage between 400 MHz and 430 MHz.

- A. Turn Radio Off.
- B. Turn Radio On and set VFO frequency to **470 MHz, Simplex**. This can be done by copying 470 MHz from the channel U (in the MT mode).
- C. Press the **[RPT]** button once. The Radio should show a minus sign for offset.
- D. Press the Push to Talk button 3 times. The display should read **070.00 MHz**.
- E. Tune the VFO up to **400 MHz**. Do this by pressing the **[F/M]** and then the up arrow key.
- F. Store 400 MHz into the L memory. ALL DONE..... GOOD LUCK !

#### FAST SCAN

Press **[ F ] [ALT]**  
Press arrow for scan.  
Press **[ F ] [VFO]**  
Press arrow for scan.

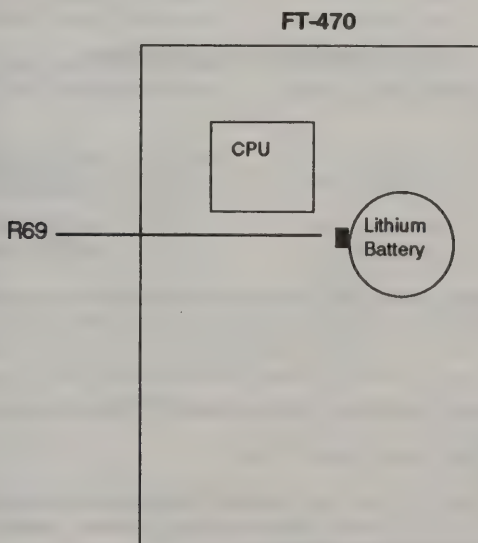
To stop  
Press **[ F ] [ALT]**

# YAESU FT-470

## Expanded Transmit 140-174 MHz

**NOT LEGAL IN U.S.A. - FOR EXPORT ONLY**

- Remove Antenna and Battery.
- Remove body screws, control knobs and battery track.
- Open radio by carefully pulling apart.
- Locate lithium battery.
- Carefully unsolder top connection to lithium battery & gently move battery to the right.
- Solder a 0 ohm resistor to position R69 which is located just under edge of lithium battery.
- Solder lithium battery back in place.
- Reassemble radio. Modification is now complete.





# YAESU FT-5200

## Cross-Band Repeat Modification

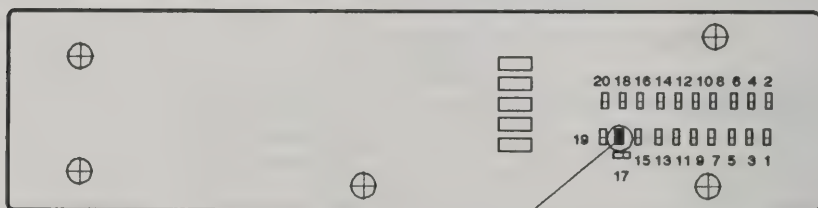


- Disconnect DC Power cable from radio.
- Unlatch and Remove Front Control Head. **Caution: NEVER TRY TO TAKE APART THE FRONT CONTROL HEAD. It will void your Warranty.**
- Remove (6) screws from Top Cover of Radio.
- Remove (6) screws from Bottom Cover of Radio.
- Remove Top & Bottom Covers from Radio. (Be careful of speaker falling out).
- Remove the (2) silver screws (on each side of radio) holding front control head mounting plate to main body of radio. Remove Front Mounting Plate.
- Locate and unsolder jumper pad 17 (see warning below)

**WARNING !** MAKE SURE YOU HAVE LOCATED THE CORRECT JUMPER # 17  
(It is in the row of other jumpers) Carefully look at the diagram below before unsoldering !

- Install Front panel mounting plate, Top, Bottom Covers and Control Head.
- Reconnect Power to the Radio. Modification is now complete.

Front View Main Body of FT-5200



Remove Jumper 17

- To activate Cross-Band Repeat. Press and hold [RPT] Key and turn on Radio.
- To stop cross-band repeat. Turn Off Radio.

**NOTE:** It is recommended that you un-plug the microphone during Cross-Band use.  
Since the mic will be hot during Cross-Band operation. Adjust your volume knob for your desired repeat audio level.

**CAUTION:** Always select your frequencies carefully before putting the FT-5200 in the cross-band repeat mode. HAVE FUN !



# **YAESU FT-5200** **Expanded Receive 118-174 MHz** **420-475 MHz**

- Disconnect DC Power cable from radio.
- Release and Remove Front Control Head. **Caution: NEVER TRY TO TAKE APART THE FRONT CONTROL HEAD. It will void your Warranty.**
- Remove (6) screws from Top Cover of Radio. Also remove (6) screws from Bottom Cover of Radio.
- Remove Top & Bottom Covers from Radio. (Be careful of speaker falling out).
- Remove the (2) silver screws (on each side of radio) holding front control head mounting plate to main body of radio. Remove Front Mounting Plate.
- Locate and solder jumper pads 1, 3, & 6. (Note: Pads 1, 2, 3, 6 & 7 should now be jumpered).  
 (Stock jumper Pads are 2 & 7 only) Remove jumper pad 17 for Cross-Band Repeat Operation.
- Install Front panel mounting plate, Top, Bottom Covers and Control Head.
- Reconnect Power to the Radio.
- Press and hold [D/MR] [ F/W ] [ REV ] Keys and turn on Radio.  
*Note: Radio will now show 000.000 & 300.000 on Display.*

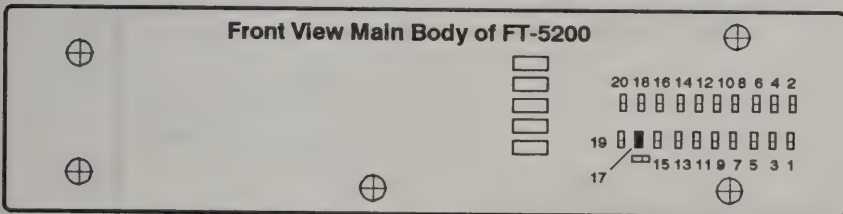
**- Select VHF Range**

- |                   |                     |                     |
|-------------------|---------------------|---------------------|
| Select 118.00 MHz | Press [D/MR] button | (VHF Rx Low Limit)  |
| Select 174.00 MHz | Press [D/MR] button | (VHF Rx High Limit) |
| Select 140.00 MHz | Press [D/MR] button | (VHF Tx Low Limit)  |
| Select 150.00 MHz | Press [D/MR] button | (VHF Tx High Limit) |

**- Select UHF Range**

- |                   |                     |                     |
|-------------------|---------------------|---------------------|
| Select 420.00 MHz | Press [D/MR] button | (UHF Rx Low Limit)  |
| Select 475.00 MHz | Press [D/MR] button | (UHF Rx High Limit) |
| Select 420.00 MHz | Press [D/MR] button | (UHF Tx Low Limit)  |
| Select 450.00 MHz | Press [D/MR] button | (UHF Tx High Limit) |

- Press Function then Repeat button and select 5 MHz Repeater offset for UHF Band.
- Press Function then Repeat button and select 600 kHz Repeater offset for VHF Band.



**Note: To override automatic display dimmer. Press and hold the MHz button while turning on the radio. Release the MHz button and turn Channel knob to manually select brightness level. Repeat the above steps to reset the automatic dimmer.**

N.M. 7/91



# **YAESU FT-6200** **Expanded Receive 420-475 MHz** **And Cross-Band Repeat**

- Disconnect DC Power cable from radio.
- Release and Remove Front Control Head.      **Caution: NEVER TRY TO TAKE APART THE FRONT CONTROL HEAD. It will void your Warranty.**
- Remove (6) screws from Top Cover of Radio. Also remove (6) screws from Bottom Cover of Radio.
- Remove Top & Bottom Covers from Radio. (Be careful of speaker falling out).
- Remove the (2) silver screws (on each side of radio) holding front control head mounting plate to main body of radio. Remove Front Mounting Plate.
- Locate and solder jumper pad 6. (Note: Pads 2, 4, 6, 7, 8, 15, 17 & 18 should now be jumpered).  
 (Stock Jumper Pads are 2, 4, 7, 8, 15, 17 & 18 only)

**For Cross-Band Repeat do the next step.**

**CAUTION !      MAKE SURE YOU HAVE THE CORRECT JUMPER PAD 17 LOCATED.**  
**(Look Carefully at Diagram below before Removing)**

- Remove jumper pad 17 for Cross-Band Repeat Operation. (It is located in the row of jumpers).

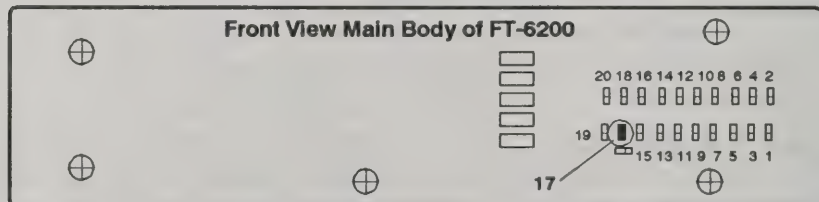
- Install Front panel mounting plate, Top, Bottom Covers and Control Head.
- Reconnect Power to the Radio.
- Press and hold [D/MR] [ F/W ] [ REV ] Keys and turn on Radio.  
*Note: Radio will now show 300.000 on Display.*

- Select UHF Range

|                   |                     |                     |
|-------------------|---------------------|---------------------|
| Select 420.00 MHz | Press [D/MR] button | (UHF Rx Low Limit)  |
| Select 475.00 MHz | Press [D/MR] button | (UHF Rx High Limit) |
| Select 420.00 MHz | Press [D/MR] button | (UHF Tx Low Limit)  |
| Select 450.00 MHz | Press [D/MR] button | (UHF Tx High Limit) |

**To activate Cross-Band Repeat. Press and Hold the RPT Button and turn on Radio.**

- Press Function then Repeat button and select 5 MHz Repeater offset for UHF Band.



**Note: To override automatic display dimmer. Press and hold the MHz button while turning on the radio. Release the MHz button and turn Channel knob to manually select brightness level. Repeat the above steps to reset the automatic dimmer.**

N.M. 11/91



**YAESU FT-650**  
**Expanded Transmit (24-56 MHz)**

**NOT LEGAL IN U.S.A. - FOR EXPORT ONLY**

- Turn Off Radio.
- Press and hold [VFO] & [ MR ] Buttons.
- Turn On Radio and Release Buttons.
- Radio will now transmit from 24 - 56 MHz.

Note: Repeating the same steps shown above will Reset FT-650 to stock.

N.M. 10/91

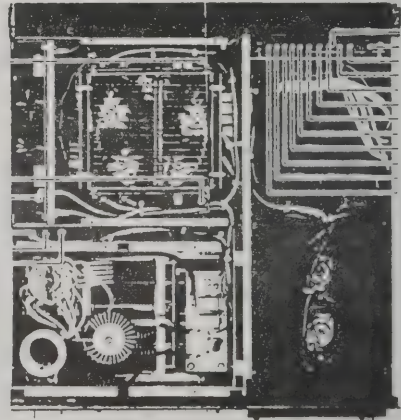
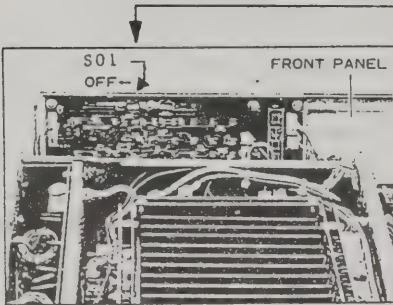
FL-7000

24.5/28.0 MHZ BAND OPERATION

COVER REMOVAL

1. Switch off the Linear amplifier and remove the AC power cable and all other cables from the rear panel.
2. Remove the right and left panels from the unit.
3. Remove the 4 (four) screws from the top cover and remove.
4. Remove the 4 (four) screw from the power combiner unit and lift off the screen.
5. Referring to the photos below, locate S01 on the CPU UNIT. Using a small screwdriver, carefully switch it to the OFF position.
6. Replace the screen cover, top cover and side panels.

FRONT SIDE OF LINEAR





## **YAESU FT-712 RHT**

**Expanded Receive**

After modification the YAESU FT-712 RHT will have a 420-479 MHz Rx and 420-451 MHz Tx.

- Disconnect DC Power cable from radio.
- Remove top and bottom covers.
- Remove the (3) knobs from front display (volume, squelch & channel knobs) by pulling out.
- Remove the three screws holding the control unit to main radio body.
- Carefully remove the Control unit from the front panel.
- Locate and remove solder from pads 1 & 2 on control unit.
- Solder jumper pads 4 & 14.

NOTE: Pads 3, 4, 5, 7, 11 & 14 should now be bridged.

- Re-install the control unit on front panel.
- With power still off. Reset the microprocessor.  
(use a jumper and short D09 on the control unit to a ground on the radio.)
- Install the Channel, volume & squelch knobs.
- Reconnect power cord and turn radio on.
- Press [MHz] button and turn channel knob to enter 420 and press [D/MR] for lower limit.
- Press [MHz] button and turn channel knob to enter 480 and press [D/MR] for upper limit.
- Press [ F ] followed by [RPT] button. Turn channel knob to 5.000. Press [RPT] button.
- Re-install the top and bottom covers.

1/91 NM

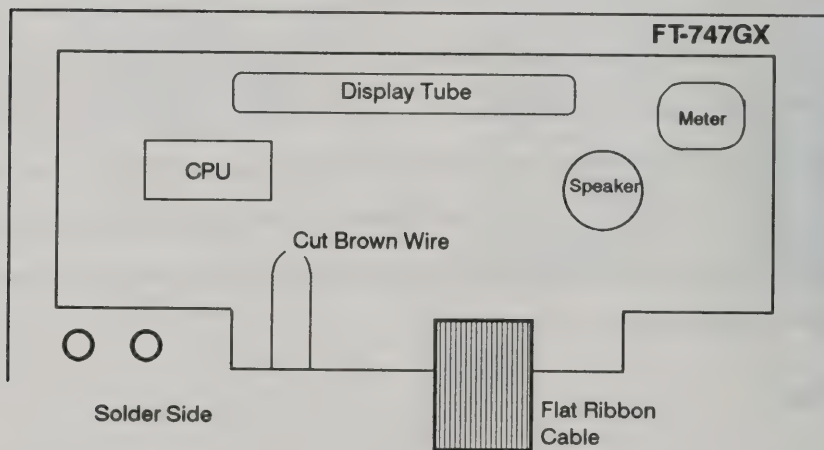


## YAESU FT-747 GX

### MARS/CAP OPERATION MODIFICATION

**WARNING !** This modification will enable the FT-747 GX transceiver to transmit continuously from 500 kHz to 30 MHz. This information is available only to individuals or groups properly licensed for operations such as MARS/CAP operations.

- Remove top cover as described on page 23 of the instruction manual.
- Remove or cut **BROWN** jumper wire on the display unit. See diagram below.
- Reconnect the power cable.
- Turn on the Radio.
- Set the VFO dial to 12.3456 MHz.
- Turn Radio off..... Now turn Radio on again.
- Turn Radio off.
- Replace top cover (careful that no wires are pinched).



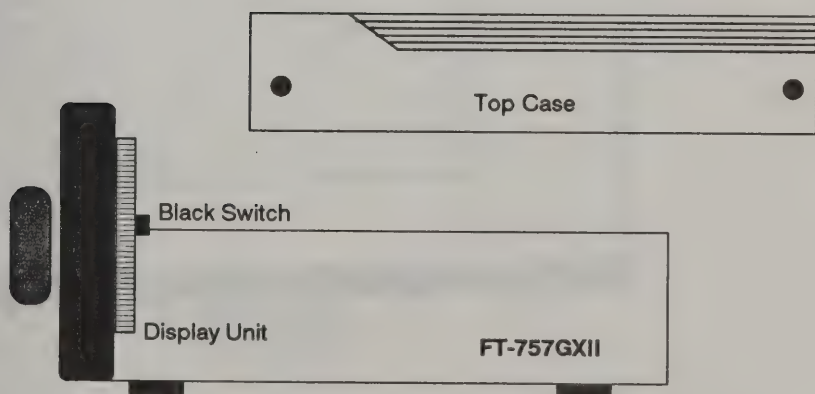


## YAESU FT-757 GXII

### MARS/CAP OPERATION MODIFICATION

**WARNING !** This modification will enable the FT-757 GX and GXII transceivers to transmit continuously from 1.5 MHz to 30 MHz. This information is available only to individuals or groups properly licensed for operations such as MARS/CAP operations.

- Remove all screws securing the top cover.
- Slide back the top cover so as to gain access to the inside front of the unit.
- Locate the BLACK slide switch on the display panel. To the right of center halfway down the backside of the Display Unit
- Slide the switch to the left side of radio.
- Reinstall the top cover. The modification is now complete.

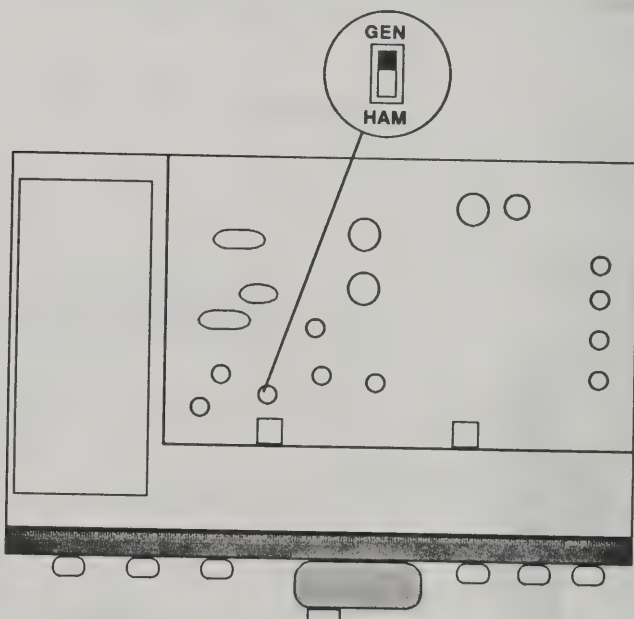


## YAESU FT-767 GX

### MARS/CAP OPERATION MODIFICATION

**WARNING !** This modification will enable the FT-767GX transceiver to transmit continuously from 500 kHz to 30 MHz. This information is available only to individuals or groups properly licensed for operations such as MARS/CAP operations.

- Remove the top cover.
- Locate the GEN/HAM switch inside the shield cover.
- Slide the switch to the GEN position.
- Replace the covers. The modification is now complete.





## **YAESU FT-890**

### **MARS/CAP OPERATION MODIFICATION**

**WARNING !** This modification will enable the FT-890 transceiver to transmit continuously from 500 kHz to 30 MHz. This information is available only to individuals or groups properly licensed for operations such as MARS/CAP operations.

1. On the Display Unit, connect a soldering bridge at jumper spot **JW3001**, temporarily while following programming.
2. Set FT-890 power switch OFF.
3. Press and Hold **[PROC]** **[AGC-F]** **[IPO]** **[ATT]** switches simultaneously.
4. While holding these switches, turn the power switch ON.
5. The frequency display shows two digits of numbers, and ON or OFF.  
Rotate the main dial to show **02-ON** on the display.
6. Press **[PROC]** switch to confirm and write the data to memory (EEPROM).
7. Turn the power switch OFF and remove the jumper which is placed in step 1.
8. Close the transceiver. Now the modification is complete.

## FT-990 MARS/CAP GENERAL COVERAGE TRANSMIT MODIFICATION

For Release to MARS and Civil Air Patrol Licensees Only

### Modification Procedure

- (1) Remove the top cover of the transceiver.
- (2) Locate the Control Unit, which is the rightmost of the vertically-mounted circuit boards as you look at the front of the transceiver. Remove the two mounting screws on the restraining brackets for the board, and remove the Control Unit.
- (3) Locate jumper pad JP5002, which is adjacent to Q5016, the rightmost of the three large ICs in the center of the board. JP5002 is along the right edge of the circuit board, and in the center in the top-to-bottom direction. Install a solder bridge across the two halves of JP5002.
- (4) Return the Control Unit to the transceiver.
- (5) Connect a 50 Ohm dummy load to the antenna jack, and a key to the key jack.
- (6) Set the MODE switch to CW, and the METER switch to ALC. Set the transceiver frequency to 5.000.00 MHz, and set the RF PWR control fully clockwise. Close the PTT and close the key, and adjust VR1003 (RF Unit) so that the ALC meter needle deflects to the right edge of the ALC meter scale.
- (7) Check across the range 4.0-6.5 MHz to be sure that the ALC meter deflects at least slightly across the entire range.
- (8) Set the frequency to 8.000.00 MHz. Key the transmitter again, and adjust VR1005 for a full scale reading of ALC, as in step (6) above. Now verify that you have ALC deflection across the frequency range 8.0-10.0 MHz.
- (9) No other alignments are needed. Replace the top cover. Modification is now complete.

Note: Specifications guaranteed only within Amateur bands.

Avoid transmission near 10.940 MHz and 23.60 MHz,  
due to elevated spurious emissions.

Fax: (213) 404-1210 • TWX: 372-8212(VAESU USA)





## YAESU FT-811

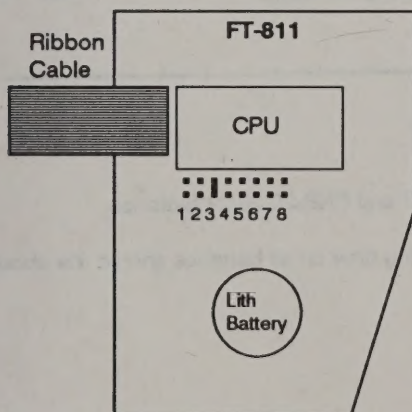
Expanded Transmit 410-475 MHz

Expanded Receive 410-475 MHz

Serial Numbers beginning with 9D, 9F, 9J series only.  
Serial Numbers beginning with 9N or higher will not modify.

**NOT LEGAL IN U.S.A. - FOR EXPORT ONLY**

- Remove Antenna and Battery.
- Remove body screws and open radio.
- Remove solder from jumper pads 2 & 4
- Place solder on jumper pad 3
- Reassemble Radio.
- Reset Radio. Press and hold [MR] [ 2 ] [VFO] while holding Keys, turn Radio on.
- Enter the following:  
4100 [VFO] 4750 [VFO] 4100 [VFO] 4750 [VFO]
- Press [F/M] then [ 7 ]. Change channel step to 25 kHz. Press [ 7 ].
- Press [F/M] then [RPT] Enter 0500 [RPT] for Repeater offsets in both VFO's.



Pad 3 Soldered.  
Pads 2, 4, no Solder.

6/90 NM

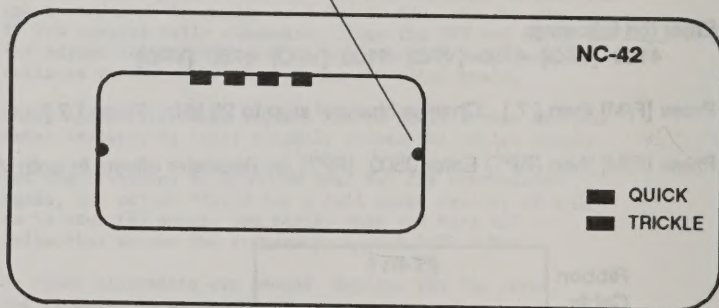
NOTE: You may have to adjust the VCO for Tx above 460.000 MHz.

## YAESU NC-42 BATTERY CHARGER MODIFICATION

This modification will also allow charging of FNB-17 Battery.

- Looking down at the charger, File down the ridge on the right side (inside of charging cup).
- Do not touch the Left side Ridge (inside of charging cup).

Carefully File down this Ridge



- This Charger will now charge: FNB-17 and FNB-25/26/27 batteries.
- This is a "SMART CHARGER". Charging time on all batteries should be about 1 hour or less.

N.M. 12/91



